Appl. No. 10/027,667
Atty. Docket No. 8828
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Customer No. 27752

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An apparatus for electrolyzing an electrolytic solution, said apparatus comprising:
   (a) a non-barrier electrolytic cell comprising:
      (i.) an anode;
      (ii.) a cathode, said anode and said cathode defining a passage formed therebetween;
      (iii.) an inlet port communicating with said passage, said inlet port used to receive a flow of electrolytic solution; and
      (iv.) an outlet port communicating with said passage, said outlet port providing an exit for the flow of electrolytic solution having been electrolyzed; and
   (b) a direct current supply that delivers less than about 5 watts of power ~~for~~ providing an electrical current from said anode to said cathode, ~~wherein said current supply delivers less than about 5 watts of power~~, wherein the electrical current electrolyzes the flow of electrolytic solution.

2. (Original) The apparatus according to Claim 1 wherein said apparatus further comprising a body, said body providing containment for said electrolytic cell and said current supply.

3. (Original) The apparatus according to Claim 1 wherein said apparatus further comprising a fluid movement mechanism for moving electrolytic solution into said inlet port and out of said outlet port.

4. (Original) The apparatus according to Claim 3 wherein said fluid movement mechanism recirculates electrolytic solution that has exited said outlet port back into said inlet port in order to repeat the electrolyzing of the electrolytic solution.

5. (Original) The apparatus according to Claim 1 wherein said apparatus further comprising a filter for removal of impurities.

6. (Original) The apparatus according to Claim 5 wherein said filter is positioned before said electrolytic cell.

7. (Original) The apparatus according to Claim 5 wherein said filter is positioned after said electrolytic cell.

8. (Original) The apparatus according to Claim 5 wherein said filter is adapted to remove 99.95% of particulates having a size of at least 3 microns or greater from the electrolytic solution.

9. (Original) The apparatus according to Claim 5 wherein said filter removes organic species.

10. (Original) The apparatus according to Claim 9 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the organic species to a form that is removable by said filter.

11. (Original) The apparatus according to Claim 5 wherein said filter removes inorganic species.

12. (Original) The apparatus according to Claim 11 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of inorganic species to a state that is removable by said filter.

13. (Original) The apparatus according to Claim 11 wherein said filter is adapted to remove arsenic.

14. (Original) The apparatus according to Claim 11 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of arsenic to a state that is removable by said filter.

15. (Original) The apparatus according to Claim 11 wherein said filter is positioned after said electrolytic cell.

16. (Original) The apparatus according to Claim 5 wherein said filter is constructed in part or in total of a resin.

17. (Original) The apparatus according to Claim 5 wherein said filter is constructed in part or in total of carbon.

18. (Original) The apparatus according to Claim 1 wherein said apparatus further comprising an ion exchange resin as a pre-treatment to the electrolytic solution prior to electrolysis.

19. (Original) The apparatus according to Claim 18 wherein said ion exchange resin is adapted to increase the halogen-containing ion concentration of the electrolytic solution.

20. (Original) The apparatus according to Claim 18 wherein said ion exchange resin is adapted to decrease the concentration of scale-forming ions from the electrolytic solution.

21. (Original) The apparatus according to Claim 18 wherein said ion exchange resin is a water softener.

22. (Original) The apparatus according to Claim 1 wherein said apparatus further comprising a water-presence sensor capable of triggering the start of the electrolysis process in the presence of water and also capable of triggering the stop of the electrolysis process in the absence of water.

23. (Original) The apparatus according to Claim 22 wherein said water-presence sensor is a field effect transistor.

24. (Original) The apparatus according to Claim 1 wherein said current supply is selected from a group consisting of battery, ac-dc converter, solar cell, manual crank generator system, water pressure/turbine energy system and combinations thereof.

25. (Original) The apparatus according to Claim 1 wherein said anode is a foil electrode.

26. (Original) The apparatus according to Claim 1 wherein said anode comprises a Group VIII metal.

27. (Original) The apparatus according to Claim 1 wherein the anode is a porous anode.

28. (Original) The apparatus according to Claim 1 wherein the porous anode is a porous metallic anode.

29. (Original) The apparatus according to Claim 1 wherein said apparatus is adapted to be used as one or more of the following applications: faucet-mounted filters, counter-top water purification devices, under-sink water purification devices, camping/backpack water purification devices, travel water purification devices, refrigerator water purification devices, pitcher-type gravity flow water purification devices, bathing water purification devices, and spa-type water purification devices.

30. (Original) The apparatus according to Claim 1 wherein said apparatus is adapted to remove impurities.

31. (Original) The apparatus according to Claim 1 wherein said apparatus is adapted to kill microorganisms.

32. (Original) An apparatus for electrolyzing an electrolytic solution, said apparatus comprising:
    (a) a non-barrier electrolytic cell comprising:
        (i.) an anode, wherein a surface area of said anode is less than about 30 cm2;
        (ii.) a cathode, said anode and said cathode defining a passage formed therebetween;
        (iii.) an inlet port communicating with said passage, said inlet port used to receive a flow of electrolytic solution; and

(iv.) an outlet port communicating with said passage, said outlet port providing an exit for the flow of electrolytic solution having been electrolyzed; and

(b) a current supply for providing an electrical current from said anode to said cathode, wherein said current supply delivers less than about 5 watts of power, wherein the electrical current electrolyzes the flow of electrolytic solution.

33. (Original) The apparatus according to Claim 32 wherein said apparatus further comprising a body, said body providing containment for said electrolytic cell and said current supply.

34. (Original) The apparatus according to Claim 32 wherein said apparatus further comprising a fluid movement mechanism for moving electrolytic solution into said inlet port and out of said outlet port.

35. (Original) The apparatus according to Claim 34 wherein said fluid movement mechanism recirculates electrolytic solution that has exited said outlet port back into said inlet port in order to repeat the electrolyzing of the electrolytic solution.

36. (Original) The apparatus according to Claim 32 wherein said apparatus further comprising a filter for removal of impurities.

37. (Original) The apparatus according to Claim 36 wherein said filter is positioned before said electrolytic cell.

38. (Original) The apparatus according to Claim 36 wherein said filter is positioned after said electrolytic cell.

39. (Original) The apparatus according to Claim 36 wherein said filter is adapted to remove 99.95% of particulates having a size of at least 3 microns or greater from the electrolytic solution.

40. (Original) The apparatus according to Claim 36 wherein said filter removes organic species.

41. (Original) The apparatus according to Claim 40 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the organic species to a form that is removable by said filter.

42. (Original) The apparatus according to Claim 36 wherein said filter removes inorganic species.

43. (Original) The apparatus according to Claim 42 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of inorganic species to a state that is removable by said filter.

44. (Original) The apparatus according to Claim 42 wherein said filter is adapted to remove arsenic.

45. (Original) The apparatus according to Claim 42 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of arsenic to a state that is removable by said filter.

46. (Original) The apparatus according to Claim 42 wherein said filter is positioned after said electrolytic cell.

47. (Original) The apparatus according to Claim 36 wherein said filter is constructed in part or in total of a resin.

48. (Original) The apparatus according to Claim 36 wherein said filter is constructed in part or in total of carbon.

49. (Original) The apparatus according to Claim 32 wherein said apparatus further comprising an ion exchange resin as a pre-treatment to the electrolytic solution prior to electrolysis.

50. (Original) The apparatus according to Claim 49 wherein said ion exchange resin is adapted to increase the halogen-containing ion concentration of the electrolytic solution.

51. (Original) The apparatus according to Claim 49 wherein said ion exchange resin is adapted to decrease the concentration of scale-forming ions from the electrolytic solution.

52. (Original) The apparatus according to Claim 49 wherein said ion exchange resin is a water softener.

53. (Original) The apparatus according to Claim 32 wherein said apparatus further comprising a water-presence sensor capable of triggering the start of the electrolysis process in the presence of water and also capable of triggering the stop of the electrolysis process in the absence of water.

54. (Original) The apparatus according to Claim 53 wherein said water-presence sensor is a field effect transistor.

55. (Original) The apparatus according to Claim 32 wherein said current supply is selected from a group consisting of battery, ac-dc converter, solar cell, manual crank generator system, water pressure/turbine energy system and combinations thereof.

56. (Original) The apparatus according to Claim 32 wherein said anode is a foil electrode.

57. (Original) The apparatus according to Claim 32 wherein said anode comprises a Group VIII metal.

58. (Original) The apparatus according to Claim 32 wherein the anode is a porous anode.

59. (Original) The apparatus according to Claim 32 wherein the porous anode is a porous metallic anode.

60. (Original) The apparatus according to Claim 32 wherein said apparatus is adapted to be used as one or more of the following applications: faucet-mounted filters, counter-top water purification devices, under-sink water purification devices, camping/backpack water purification devices, travel

water purification devices, refrigerator water purification devices, pitcher-type gravity flow water purification devices, bathing water purification devices, and spa-type water purification devices.

61. (Original) The apparatus according to Claim 32 wherein said apparatus is adapted to remove impurities.

62. (Original) The apparatus according to Claim 32 wherein said apparatus is adapted to kill microorganisms.

63. (Currently Amended) An apparatus for electrolyzing an electrolytic solution, said apparatus comprising:
    (a) a non-barrier electrolytic cell comprising:
        (i.) an anode;
        (ii.) a cathode, said anode and said cathode defining a passage formed therebetween, said passage having a distance between said anode and said cathode of less than about 0.6 mm;
        (iii.) an inlet port communicating with said passage, said inlet port used to receive a flow of electrolytic solution; and
        (iv.) an outlet port communicating with said passage, said outlet port providing an exit for the flow of electrolytic solution having been electrolyzed; and
    (b) a direct current supply that delivers less than about 5 watts of power ~~for~~ providing an electrical current from said anode to said cathode, ~~wherein said current supply delivers less than about 5 watts of power,~~ wherein the electrical current electrolyzes the flow of electrolytic solution.

64. (Original) The apparatus according to Claim 63 wherein said apparatus further comprising a body, said body providing containment for said electrolytic cell and said current supply.

65. (Original) The apparatus according to Claim 63 wherein said apparatus further comprising a fluid movement mechanism for moving electrolytic solution into said inlet port and out of said outlet port.

66. (Original) The apparatus according to Claim 65 wherein said fluid movement mechanism re-circulates electrolytic solution that has exited said outlet port back into said inlet port in order to repeat the electrolyzing of the electrolytic solution.

67. (Original) The apparatus according to Claim 63 wherein said apparatus further comprising a filter for removal of impurities.

68. (Original) The apparatus according to Claim 67 wherein said filter is positioned before said electrolytic cell.

69. (Original) The apparatus according to Claim 67 wherein said filter is positioned after said electrolytic cell.

70. (Original) The apparatus according to Claim 67 wherein said filter is adapted to remove 99.95% of particulates having a size of at least 3 microns or greater from the electrolytic solution.

71. (Original) The apparatus according to Claim 67 wherein said filter removes organic species.

72. (Original) The apparatus according to Claim 71 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the organic species to a form that is removable by said filter.

73. (Original) The apparatus according to Claim 67 wherein said filter removes inorganic species.

74. (Original) The apparatus according to Claim 73 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of inorganic species to a state that is removable by said filter.

75. (Original) The apparatus according to Claim 73 wherein said filter is adapted to remove arsenic.

76. (Original) The apparatus according to Claim 73 wherein said filter is positioned after said electrolytic cell and said electrolytic cell converts the oxidation state of arsenic to a state that is removable by said filter.

77. (Original) The apparatus according to Claim 73 wherein said filter is positioned after said electrolytic cell.

78. (Original) The apparatus according to Claim 67 wherein said filter is constructed in part or in total of a resin.

79. (Original) The apparatus according to Claim 67 wherein said filter is constructed in part or in total of carbon.

80. (Original) The apparatus according to Claim 63 wherein said apparatus further comprising an ion exchange resin as a pre-treatment to the electrolytic solution prior to electrolysis.

81. (Original) The apparatus according to Claim 80 wherein said ion exchange resin is adapted to increase the halogen-containing ion concentration of the electrolytic solution.

82. (Original) The apparatus according to Claim 80 wherein said ion exchange resin is adapted to decrease the concentration of scale-forming ions from the electrolytic solution.

83. (Original) The apparatus according to Claim 80 wherein said ion exchange resin is a water softener.

84. (Original) The apparatus according to Claim 63 wherein said apparatus further comprising a water-presence sensor capable of triggering the start of the electrolysis process in the presence of water and also capable of triggering the stop of the electrolysis process in the absence of water.

85. (Original) The apparatus according to Claim 84 wherein said water-presence sensor is a field effect transistor.

86. (Original) The apparatus according to Claim 63 wherein said current supply is selected from a group consisting of battery, ac-dc converter, solar cell, manual crank generator system, water pressure/turbine energy system and combinations thereof.

87. (Original) The apparatus according to Claim 63 wherein said anode is a foil electrode.

88. (Original) The apparatus according to Claim 63 wherein said anode comprises a Group VIII metal.

89. (Original) The apparatus according to Claim 63 wherein the anode is a porous anode.

90. (Original) The apparatus according to Claim 63 wherein the porous anode is a porous metallic anode.

91. (Original) The apparatus according to Claim 63 wherein said apparatus is adapted to be used as one or more of the following applications: faucet-mounted filters, counter-top water purification devices, under-sink water purification devices, camping/backpack water purification devices, travel water purification devices, refrigerator water purification devices, pitcher-type gravity flow water purification devices, bathing water purification devices, and spa-type water purification devices.

92. (Original) The apparatus according to Claim 63 wherein said apparatus is adapted to remove impurities.

93. (Original) The apparatus according to Claim 63 wherein said apparatus is adapted to kill microorganisms.